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Dissertation on pulmonary hemorrhage

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XXIII.

Dissertation
on
Pulmonary Hemorrhage.

By
William Henry Williams,
of Clinton,
Candidate for the Degree of Doctor in Medicine.



Gentlemen - Pulmonary hemorrhage its causes and treatment is the subject which I propose to briefly consider. It is divided into primary or idiopathic and secondary or symptomatic. In the primary there is no rupture of a blood vessel but the hemorrhage takes place from ten thousand minute points upon the surface of the mucous membrane lining the bronchial tubes or air cells of the lungs. But in the secondary the blood may be exhaled from these minute points or it may be poured out from an opened vessel, an artery or a vein.

The instances of pulmonary hemorrhage that have been proved strictly idiopathic are very rare. We have but few cases stated in our books of this kind. The story told by Pliny of the woman governor who suffered habitual hemoptysis but who lived to the good old age of four score years and ten has

been often cited as an example of idiopathic hæmorrhage from the lungs. Now says one writer "the frequent citation of this supposed instance is of itself a sufficient proof that spontaneous pulmonary hæmorrhage is far from being common."

Some Physicians however seem to regard it as not very infrequent. They think that persons who have been subject to epistaxis or nose bleed in early life are sometimes attacked with hæmorrhage from the lungs at a subsequent period. Others again think that almost every instance of such hæmorrhage is attended by organic disease of the lungs and is merely symptomatic and they base their opinion upon statistics not mere conjecture. Still I think it may occur as an idiopathic affection. Certainly it may occur without any disease either of the lungs or heart. I know of an instance of this kind. A gentleman of about 30 yrs of age who had been subject to attacks of hæmoptysis died in one of them during the last year. On dissection, his lungs were found free from disease there was no disease of the heart in short there was no disease found in the viscera of the thorax or any thing that looked like it except a small adhesion of one lung to the chest the result of a pleurisy he had when a boy.

There is a form of Pulmonary hæmorrhage which is considered as holding a kind of middle way station between primary and secondary

It is vicarious and is usually of the menstrual discharge in females
Some have strongly doubted the existence of this form. I heard a
physician of the City Hospital of New York who has paid a good share
of attention to diseases of the chest and who has ample opportunity for
prosecuting his investigations say that he had never met with a case
of this kind ~~that~~ he had inquired of the oldest physicians in the city and
was told they had not. He thought the statements of such cases in
books were incorrect. But there is a case stated in the published lec-
tures of Dr. Watson in which it seems there can be no possibility of mistake.
He quotes it from Pinel. The history of it is as follows

"A female 58 years old born of healthy and robust parents of strong
constitution of a sanguine and plethoric temperament and of great
sensibility lived in the Salpêtrière & was therefore under constant
observation from the age of 14. She enjoyed excellent health till she
was 16 yrs. old. At this time the menstrual discharge commenced
without difficulty; but this her first menstruation was suddenly sup-
pressed by fright at the sight of an epileptic in strong convul-
sions. From that time ^{her catamenia} never ~~reappeared~~; but at the time
when her next regular menstruation should have come on she was at-
tacked with violent hemoptysis and with one exception only she con-
tinued to menstruate regularly through her lungs till her 58 yrs. a pe-
riod of 42 yrs. She continued plump and otherwise healthy."

This case proves conclusively that it has occurred in one instance and if in one why may it not have occurred in more? ^{up} Probably it does occasionally take place.

In primary hemorrhage from the lungs the cause may be a general plethora of the system. Pulmonary hemorrhage sometimes happens to those who ascend very high mountains in consequence of the diminished pressure of the atmosphere. It happened to Humboldt and his companions in one instance when they had reached a very great elevation.

The most common cause of secondary hemorrhage is organic disease either of the lungs or heart usually the former. Phthisis pulmonalis that frequent and fatal disease is almost invariably attended by pulmonary hemorrhage. It is sometimes the first indication of this frightful malady and very often the first symptom that alarms either the unfortunate patient or his friends. There are two ways in which tubercular disease of the lungs which is phthisis causes hemorrhage. The tubercles by their presence in the delicate tissue of the lungs ^{may} excite congestion of the part till it can no longer be borne and then the blood is poured out upon the inner membrane of the air cells and bronchial tubes from an innumerable number of points constituting a bed is called the hemorrhage.

of exhalation. It is an effort of nature to unload the over distended
veins and if not very copious and does not clog the lungs, is not very
injurious. ^{but} it may be very profuse and then the life of the
patient is sometimes in immediate danger. It is a striking instance
what facility & rapidity the blood is sometimes poured out from
the venous membrane in this way; it may be so rapid that
if prompt and efficient treatment is not adopted the patient
may die almost immediately. (This is the usual form of
hemorrhage in phthisis; but sometimes in the progress of the
disease a blood vessel gets laid open and then copious & very
likely fatal bleeding ensues. This is a rare occurrence because
in the formation of the cavities or caverns or sinuses as they
are called the blood vessels are subjected to pressure and
inflammation which usually renders them insensitive to some
distance from where they are divided by the disease. Tubercles
may by the mechanical pressure which they make upon
the blood vessels cause hemorrhage. By impeding the flow of
blood through its proper channel they may cause congestion &
distention till it ends in hemorrhage.

Next to tubercular disease of the lungs as a cause of pulmonary hemorrhage is disease of the heart impeding in some way
the return of blood from the lungs. When produced by this cause.

the derangement is in the left chambers of the heart. It can not be in the right since any obstacle to the free passage of the blood here would directly tend to diminish the quantity of blood sent to the lungs and induce congestion of the liver and system of the vena porta. It has been stated by some that the disease was usually in the right side but common sense and the facts developed by dissection are altogether against this doctrine. The peculiar condition of the left chamber causing pulmonary hemorrhage may be either hypertrophy with ossification of the valves of that side or there may be simple hypertrophy. There is one state of the lung which is sometimes met with where the bleeding is caused by cardiac disease that is called pulmonary apoplexy. It may occur when there is no disease of the heart but this is the principal cause. There are two forms of this the diffused and the circumscribed or lobular. In the first a considerable part of the lung perhaps the whole of one lobe or more is found filled with dark coagulated blood. The blood may have been forced out by exhalation and filling up the air vessels has coagulated there. In the second or lobular form when the lung is examined after death a number of compact masses ^{are found} situated here and

there in the substance of the lung chiefly however in the lower lobes. These masses are somewhat globular and vary in diameter from half an inch to two or three inches. They are of a dark color and are formed by the coagulation of blood in the pulmonary vesicles of the lobules of the lungs. These lobules having no communication with each other but being inclosed in a sort of membrane each in its own branches leading to it give origin to these distinct masses.

It is thought and with good reason perhaps that in this form the hemorrhage takes place from a bronchus and in the efforts at respiration a portion of the blood may be carried forward toward the trachea but a portion of it is current backward into the lobule to which the bronchus leads by the rush of air towards it. In this manner the blood may lodge itself in the pulmonary vesicles & preventing the entrance of air coagulate there. Perhaps this is the only satisfactory explanation of the fact that distinct lobules scattered about in different parts of the lung are thus found filled up. Sometimes the lung is found broken down in a manner similar to the substance of the brain in cerebral hemorrhage.

Pulmonary apoplexy is only a consequence of pulmonary hemorrhage. The blood is first poured out of its natural channels and then following the course described it causes the condition we have been considering. It is sometimes seen after death from phthisis where there has been

considerable hemoptysis.

The symptoms attending the two forms of pulmonary apoplexy are somewhat different. In the lobular or circumscribed form the hemorrhage is often profuse; but in the diffused it is commonly slow and gradual.

There is one cause of hemoptysis that should ^{not} be passed by though it is exceedingly rare. It is the rupture of ^{an} aneurism into the lungs. An aneurism of the arch of the aorta or some of its branches does sometimes burst and force its contents into the lungs.

Hemorrhage from mechanical injury to the thorax is not an infrequent circumstance but this I do not propose to consider. In common pneumonia there is usually a slight oozing of blood from the mucous membrane but I am not aware that is ever any thing more. The blood is only seen mingled with the mucus expectorated just enough to give it a little color.

When blood is discharged from the lungs it is always a serious affair and should receive the closest investigation. It is not usually alarming so much because it immediately endangers life (although it does sometimes) as because it indicates in most cases incurable disease. I believe the doctrine that it caused the deposit of tubercles in the lungs and consequently phthisis is now pretty thoroughly exploded. It is often

a consequence of that disease but not a cause. Aside from the cases of hemoptysis from mechanical injury to the thorax & of vicarious hemorrhage probably nineteen twentieths of the cases or as some would say ninety nine hundredths are caused by organic disease either of the lungs or heart. A person predisposed to it any thing which hurries the circulation will tend to produce it. Violent exercise of any kind straining loud belching hollaring or singing playing on wind instruments or any thing in short which tends to over tax the lungs.

I have used the terms pulmonary hemorrhage and hemoptysis as synonymous but they are not. The first is simply an effusion or rupture of blood into the lungs the latter is something more; it is the discharge of that blood from the lungs. Hemorrhage may occur without hemoptysis but hemoptysis can not occur without hemorrhage. They hold the relation to each other of cause and effect.

The quantity of blood lost varies from a very small quantity to such an amount as destroys the life of the patient at once either by suffocation or syncope and between these extremes there is every variety of quantity.

The diagnosis in cases where blood is expectorated from the

mouth is not always an easy matter. It may proceed from the cavity of the mouth, nose, stomach or lungs. It is however between the last two that it is most difficult to distinguish. When from the other parts mentioned an inspection of the parts will satisfy us as to its origin. But the color of the blood or the sudden discharge of it or the presence of cough at the time will not enable us to determine whether it is hemoptysis or hematemesis. There are certain symptoms that will usually enable us to form a correct diagnosis. In ^{hem.} hematemesis is preceded by some disturbance in the region of the stomach, a sensation of oppression and weight in the epigastrium and by nausea. It is more frequently than hemoptysis preceded by paleness of the countenance a partial stop of sight and a tendency to syncope. On the other hand the precursors of hemoptysis are dyspnoea, cough, a tickling in the throat and a sensation of bubbling in the thorax. Usually before a copious bleeding from the lungs some sputa are coughed up composed more or less of blood. Copious hemorrhage of this kind usually goes in or in a succession of small amounts while in hematemesis it may all be discharged at once. When from the lungs it continues to be coughed up in gradually diminishing

quantities for a considerable length of time when the patient lives through it. Physical signs as they are called percussive and auscultation will enable us to determine the organ from which the blood proceeds.

Treatment. This must be varied according to the state of the system. The hemorrhage must be stopped as soon as possible. This is the only safe rule for the lungs it continues, the more dangerous it becomes. If it is caused by the discharge of the blood of an aneurismal tumor into the lungs no treatment will be of any avail. But such a case might not be seen in a thousand. In a majority of cases as has before been said the hemorrhage is by exhalation now it depends on congestion active or mechanical and the indication of course is to remove that congestion. If tubercles are the primary cause it may be either active or mechanical. They may excite congestion by the irritation they produce or by the mechanical pressure they make upon the blood vessels preventing the free circulation of blood. Sometimes there is considerable febrile excitement the pulse is frequent full and hard the countenance is flushed and the skin hot. In such a case veni-section and the antiphlogistics are strongly indicated. The patient should be held according

according to the severity of the symptoms and his strength of constitution. He should be placed in a recumbent posture and lightly covered with clothing cool air ~~should~~ admitted into his room perfect rest & quiet enjoined should not be allowed to talk much. In addition to these things he should be allowed cool acidulous drinks and ~~should~~ a cathartic ^{should be} administered. These remedies are to be continued until the severity of the symptoms is subdued.

The general bleeding in hemoptysis is not usually called for and when practiced should be used with caution as such patients are often debilitated by previous disease and do not bear large bleeding very well. Local depletion by cupping & leeches is of great service in such cases and often very beneficial where general bleeding is also resorted to.

When the inflammatory symptoms are not present or when they have been subdued the astringents and styptics are used as the acetate of lead sulphate of alumina and potassa nitrate of potassa chloride of sodium or common salt. Some of the emetics are used in nauseating doses and may be given with advantage sometimes at the commencement of the hemorrhage in full emetic doses. Ipecac is found very good for this given either in nauseating dose or as an emetic at the beginning. Dr. J. Saw, thinks Tartarized antimony is one of the

best remedies for controlling pulmonary hemorrhage. We give it in small doses and keep the system under the influence of it for some time. When the acetate of lead is used it is usually combined with opium. There is a prejudice against this article on account of its sometimes causing lead colic.

It is thought that it does this by being converted into a carbonate of lead in the stomach and Dr. H. H. Thompson who first suggested this idea thinks it may be prevented by the administration of the article with a portion of free acetic acid.

If the hemorrhage is caused by disease of the heart it may be proper to let blood and use the common remedies for reducing the action of this organ but in such cases our most commanding remedy at least one of them is digitalis. This possesses great power over the action of the heart and arteries and is often useful in hemorrhage that does not depend on cardiac disease.

I have omitted a large class of remedies used for controlling pulmonary as well as other forms of hemorrhage viz. vegetable astringents. Of these are catechu kino krameria hamamelis hematoxylin the gallnuts geranium maculatum gum rivale statice rosahina the tannic acid &c. Some of these may frequently ^{be} used with advantage. First with

all our long array of remedies instances may occur where in spite of their most judicious application the hemorrhage will only cease with the life of the patient.

William Henry Williams

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